

The Examiner has objected to the amendment filed August 6, 2001 under 35 U.S.C. 132 because the amendment introduces new matter into the disclosure. Applicant has deleted the text that the Examiner considers new matter, and therefore Applicant respectfully requests the Examiner to withdraw the 132 objection.

The Examiner states that the amendment to pages 7, lines 24-30, as described in the response dated August 6, 2001 and September 6, 2001 has not been entered. The Examiner states that the Applicant has not provided a clean copy of the paragraph noted above. Applicant respectfully submits that a clean copy of the amendment to page 7, lines 24-30, is enclosed with this response.

The Examiner has rejected claims 5 and 6 under 35 U.S.C. 102(a) as being anticipated by Fabrication of submicrometer 3D periodic structures composed of Si/SiO₂ by Kawakami. Applicant respectfully submits that the Kawakami reference is not prior art. As described in the enclosed Affidavit, Applicant has perfected priority to March 29, 1997 because all of the elements of both claims 5 and 6 are described in Japanese Patent Application No. 9/114951 filed on March 29, 1997. The Kawakami reference has a publication date of July 1997. The present application has a priority date earlier than the Kawakami reference publication date and therefore, the Kawakami reference

is not prior art. Applicant respectfully requests the Examiner to withdraw the 102 rejection to claims 5 and 6.

5 The Examiner has rejected claim 5 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as being obvious over Fan et al. (USPN 5,600,483). Applicant respectfully submits that claim 5 of the present application is not anticipated by the '483 reference. Claim 5 of the present application recites a three-dimensional periodic structure wherein the structure is fabricated by sequentially and
10 periodically forming at least two kinds of layers including a layer mainly comprising SiO₂ and a layer mainly comprising Si on a substrate having two-dimensionally periodically recessed or projecting portions. The '483 reference does not describe or show a three-dimensional periodic structure wherein the structure
15 is fabricated by sequentially and periodically forming at least two kinds of layers including a layer mainly comprising SiO₂ and a layer mainly comprising Si on a substrate having two-dimensionally periodically recessed or projecting portions, therefore, claim 5 of the present application is not anticipated
20 by the '483 reference.

The Examiner has rejected claim 5 as being obvious over the '483 reference. The Examiner states that the resulting structure in the '483 reference appears to be the same as claimed by the Applicant. Applicant respectfully disagrees with the Examiner's

statement. Claim 5 of the present invention recites a three-dimensional periodic structure wherein the structure is fabricated by sequentially and periodically forming at least two kinds of layers including a layer mainly comprising SiO_2 and a layer mainly comprising Si on a substrate having two-dimensionally periodically recessed or projecting portions. The two-dimensionally periodically recessed or projecting portions are utilized in the present invention to ensure that the same layer is applied to the substrate notwithstanding if the layer is Si or SiO_2 . By using the same layers for either Si and SiO_2 , the layers interlace with one another to provide a more reliable structure. The interlaced layers provide a consistent design for the structure in the present invention. Furthermore, by ensuring the same layer is applied to the substrate notwithstanding whether the layer is Si or SiO_2 , the structure is easy and quick to produce.

The '483 reference deposits layers upon one another and then etches parallel channels throughout the layers. The parallel channels etched through the layers in the '483 reference cause a less reliable structure as the etching can effect the consistency of the different layers and thereby reduce the reliability of the structure. Furthermore, the application of each of the layers and then etching parallel channels throughout the layers in the '483 reference is time consuming and can be difficult when

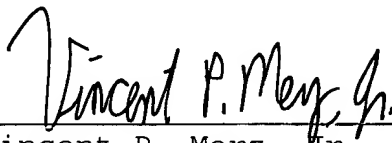
attempting to minimize irregularities throughout the structure caused by inaccurate etching of the parallel channel.

The two-dimensionally periodically recessed or projecting portions in the periodic structure found in the present application ensures that the same layers are applied to the substrate notwithstanding whether the layer is the Si or SiO₂ layer. This structure in the present application provides for a more consistent and reliable design for the structure, as well as, making the structure easy and quick to produce wherein the '483 reference deposits layers upon one another and then etches parallel channels throughout the layers. The etching of the parallel channels causes a much less reliable structure due to the inconsistencies of each parallel channel that is etched into the layers of the structure. Also, the time and inaccuracies caused by etching the parallel channels throughout the layers increases the amount of time and difficulty in producing the structure found in the '483 reference. These many differences between the present application and the '483 reference show that there is no teaching or suggestion in the '483 reference that makes the present application obvious. Therefore, claim 5 of the present application is not obvious over the '483 reference and Applicant respectfully requests the Examiner to withdraw the 103 rejection to claim 5.

Applicant respectfully requests the Examiner to withdraw the 102 and 103 rejections to the claims and forward a Notice of Allowability to the undersigned.

If the Examiner has any questions or comments that would speed prosecution of this case, the Examiner is invited to call the undersigned at 260/485-6001.

Respectfully submitted,



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VPM/td

Encs: Replacement Specification
Paragraphs
Replacement Claims
Marked-up Claims
Petition for Extension of
Time
Request for Continued
Examination
Check No. 6044 (\$830)
Return Postcard

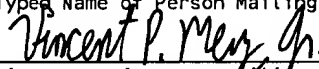
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MARKED-UP CLAIMS

Please cancel claims 1-4 and 7-18 without prejudice.

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